

CITY OF BURNSVILLE

drinking water quality REPORT



City of
Burnsville

For testing completed in
2018

Burnsville

2018 DRINKING WATER REPORT

English:

This report contains important information about your drinking water. Have someone translate it for you, or speak with someone who understands it.

Spanish:

Información importante. Si no la entiende, haga que alguien se la traduzca ahora.

Hmong:

Daim ntawv teev num no muaj cov ntaub ntawv tseem ceeb hais txog koj cov dej haus. Nrhiav ib tug neeg pab txhais cov ntaub ntawv no rau koj, lossis tham nrog ib tug neeg uas paub cov lus no.

Russian:

В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.



Somali:

Warbixintan waxay wadataa macluumaad muhiim ah ee la xiriira biyaha aad cabtid. Cid ha kuu tarjunto ama la hadl cid fahmaysa.

Making Safe Drinking Water

Your drinking water comes from the following groundwater and surface water sources: surface water drawn from Kraemer Quarry and your system has 17 wells ranging from 298 to 1030 feet deep, that draw water from the Prairie Du Chien-Jordan, Mt. Simon, Tunnel City-Mt.Simon and Jordan aquifers.

Burnsville works hard to provide you with safe and reliable drinking water that meets federal and state water quality requirements. The purpose of this report is to provide you with information on your drinking water and how to protect our precious water resources.

Contact Linda Mullen, Utilities Superintendent, at 952-895-4552 or linda.mullen@burnsvillemn.gov if you have questions about Burnsville's drinking water. You can also ask for information about how you can take part in decisions that may affect water quality.

The U.S. Environmental Protection Agency sets safe drinking water standards. These standards limit the amounts of specific contaminants allowed in drinking water. This ensures that tap water is safe to drink for most people. The U.S. Food and Drug Administration regulates the amount of certain contaminants in bottled water. Bottled water must provide the same public health protection as public tap water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Burnsville Monitoring Results



This report contains monitoring results from Jan. 1 to Dec. 31, 2018 indicating that Burnsville's drinking water is safe.

The City works with the Minnesota Department of Health to test drinking water for more than 100 contaminants. It is not unusual to detect contaminants in small amounts. No water supply is ever completely free of contaminants. Drinking water standards protect Minnesotans from substances that may be harmful to their health.

Learn more by visiting the Minnesota Department of Health's webpage

[Basics of Monitoring and Testing of Drinking Water in Minnesota](https://www.health.state.mn.us/communities/environment/water/factsheet/sampling.html)

(<https://www.health.state.mn.us/communities/environment/water/factsheet/sampling.html>).

How to Read the Water Quality Data Tables

The tables on the following pages show the contaminants found last year, or the most recent time they were sampled. They also show the levels of those contaminants and the Environmental Protection Agency's limits. Substances tested for but that were not found are not included in the tables.

The City samples for some contaminants less than once a year because their levels in water are not expected to change from year to year. If any of these contaminants were found the last time sampled, they are included in the tables below with the detection date.

The City may have done additional monitoring for contaminants that are not included in the Safe Drinking Water Act. To request a copy of these results, call the Minnesota Department of Health at 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Definitions

- **AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **EPA:** Environmental Protection Agency
- **MCL (Maximum contaminant level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum contaminant level goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Level 1 Assessment:** A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
- **Level 2 Assessment:** A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
- **MRDL (Maximum residual disinfectant level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum residual disinfectant level goal):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **NA (Not applicable):** Does not apply.
- **NTU (Nephelometric Turbidity Units):** A measure of the cloudiness of the water (turbidity).
- **pCi/l (picocuries per liter):** A measure of radioactivity.
- **ppb (parts per billion):** One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. ppb is the same as micrograms per liter ($\mu\text{g/l}$).
- **ppm (parts per million):** One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. ppm is the same as milligrams per liter (mg/l).
- **PWSID:** Public water system identification.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.
- **Variances and Exemptions:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

Monitoring Results – Regulated Substances

LEAD AND COPPER – Tested at customer taps.

Contaminant (Date, if sampled in previous year)	EPA's Action Level	EPA's Ideal Goal (MCLG)	90% of Results Were Less Than	Number of Homes with High Levels	Violation	Typical Sources
Copper (06/30/18)	90% of homes less than 1.3 ppm	0 ppm	0.48 ppm	0 out of 30	NO	Corrosion of household plumbing.
Lead (06/30/18)	90% of homes less than 15 ppb	0 ppb	2.2 ppb	0 out of 30	NO	Corrosion of household plumbing.

INORGANIC & ORGANIC CONTAMINANTS – Tested in drinking water.

Contaminant (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Nitrate	10.4 ppm	10 ppm	0.58 ppm	N/A	NO	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Gross Alpha (2016)	15.4 pCi/l	0 pCi/l	11 pCi/l	N/A	NO	Erosion of natural deposits.
Combined Radium (2016)	5.4 pCi/l	0 pCi/l	4.2 pCi/l	N/A	NO	Erosion of natural deposits.

CONTAMINANTS RELATED TO DISINFECTION – Tested in drinking water.

Substance (Date, if sampled in previous year)	EPA's Limit (MCL or MRDL)	EPA's Ideal Goal (MCLG or MRDLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Total Trihalomethanes (TTHMs)	80 ppb	N/A	27.6 ppb	9.50 - 46.40 ppb	NO	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA)	60 ppb	N/A	7.1 ppb	2.80 - 8.20 ppb	NO	By-product of drinking water disinfection.
Total Chlorine	4.0 ppm	4.0 ppm	0.86 ppm	0.57 - 0.92 ppm	NO	Water additive used to control microbes.

Total HAA refers to HAA5

OTHER SUBSTANCES – Tested in drinking water.

Substance (Date, if sampled in previous year)	EPA's Limit (MCL)	EPA's Ideal Goal (MCLG)	Highest Average or Highest Single Test Result	Range of Detected Test Results	Violation	Typical Sources
Fluoride	4.0 ppm	4.0 ppm	0.57 ppm	0.42 - 0.55 ppm	NO	Erosion of natural deposits; Water additive to promote strong teeth.

TREATMENT INDICATOR – Tested during treatment.

Substance	Removal Required	Lowest Monthly Percent of Results in Compliance	Highest Test Result	Violation	Typical Sources
Turbidity	Treatment Technique	100	0.27	NO	Soil runoff.

Potential Health Effects and Corrective Actions (If Applicable)

Fluoride: If your drinking water fluoride levels are below the optimal concentration range of 0.7 to 1.2 ppm, please talk with your dentist about how you can protect your teeth and your family's teeth from tooth decay and cavities. For more information, visit:

MDH Drinking Water Fluoridation

(<http://www.health.state.mn.us/divs/eh/water/com/fluoride/index.html>).

Turbidity: Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Monitoring Results – Unregulated Substances

In addition to testing drinking water for contaminants regulated under the Safe Drinking Water Act, the City sometimes also monitors for contaminants that are not regulated. Unregulated contaminants do not have legal limits for drinking water.

Detection alone of a regulated or unregulated contaminant should not cause concern. The meaning of a detection should be determined considering current health effects information. We are often still learning about the health effects, so this information can change over time.

The following table shows the unregulated contaminants detected last year, as well as human-health based guidance values for comparison, where available. The comparison values are based only on potential health impacts and do not consider our ability to measure contaminants at very low concentrations or the cost and technology of prevention and/or treatment. They may be set at levels that are costly, challenging, or impossible for water systems to meet (for example, large-scale treatment technology may not exist for a given contaminant).

A person drinking water with a contaminant at or below the comparison value would be at little or no risk for harmful health effects. If the level of a contaminant is above the comparison value, people of a certain age or with special health conditions - like a fetus, infants, children, elderly, and people with impaired immunity – may need to take extra precautions. Because these contaminants are unregulated, EPA and MDH require no particular action based on detection of an unregulated contaminant. We are notifying you of the unregulated contaminants we have detected as a public education opportunity.

- More information is available on MDH's [A-Z List of Contaminants in Water](https://www.health.state.mn.us/communities/environment/water/contaminants/index.html) (<https://www.health.state.mn.us/communities/environment/water/contaminants/index.html>) and Fourth [Unregulated Contaminant Monitoring Rule \(UCMR 4\)](https://www.health.state.mn.us/communities/environment/water/com/ucmr4.html) (<https://www.health.state.mn.us/communities/environment/water/com/ucmr4.html>).

UNREGULATED CONTAMINANTS – Tested in drinking water.

Contaminant	Comparison Value	Highest Average Result or Highest Single Test Result	Range of Detected Test Results
Sodium*	20 ppm	41.4 ppm	N/A
Sulfate	500 ppm	41.5 ppm	N/A

*Note that home water softening can increase the level of sodium in your water. The EPA health guidance of 20 mg/L (ppm) is a recommendation for individuals on a restricted sodium diet of 500 mg/day.

Some People Are More Vulnerable to Contaminants in Drinking Water

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. The developing fetus and therefore pregnant women may also be more vulnerable to contaminants in drinking water. These people or their caregivers should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Learn More about Your Drinking Water

Drinking Water Sources

Minnesota's primary drinking water sources are groundwater and surface water. Groundwater is the water found in aquifers beneath the surface of the land. Groundwater supplies 75 percent of Minnesota's drinking water. Surface water is the water in lakes, rivers, and streams above the surface of the land. Surface water supplies 25 percent of Minnesota's drinking water.

Contaminants can get in drinking water sources from the natural environment and from people's daily activities. There are five main types of contaminants in drinking water sources.

- **Microbial contaminants**, such as viruses, bacteria, and parasites. Sources include sewage treatment plants, septic systems, agricultural livestock operations, pets, and wildlife.
- **Inorganic contaminants** include salts and metals from natural sources (e.g. rock and soil), oil and gas production, mining and farming operations, urban stormwater runoff, and wastewater discharges.
- **Pesticides and herbicides** are chemicals used to reduce or kill unwanted plants and pests. Sources include agriculture, urban stormwater runoff, and commercial and residential properties.
- **Organic chemical contaminants** include synthetic and volatile organic compounds. Sources include industrial processes and petroleum production, gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** such as radium, thorium, and uranium isotopes come from natural sources (e.g. radon gas from soils and rock), mining operations, and oil and gas production.

The Minnesota Department of Health provides information about your drinking water source(s) in a source water assessment, including:

- How Burnsville is protecting your drinking water source(s);
- Nearby threats to your drinking water sources;
- How easily water and pollution can move from the surface of the land into drinking water sources, based on natural geology and the way wells are constructed.

Find your source water assessment at [Source Water Assessments](https://www.health.state.mn.us/communities/environment/water/swp/swa) (<https://www.health.state.mn.us/communities/environment/water/swp/swa>) or call 651-201-4700 or 1-800-818-9318 between 8:00 a.m. and 4:30 p.m., Monday through Friday.

Lead in Drinking Water

You may be in contact with lead through paint, water, dust, soil, food, hobbies, or your job. Coming in contact with lead can cause serious health problems for everyone. There is no safe level of lead. Babies, children under six years, and pregnant women are at the highest risk.

Lead is rarely in a drinking water source, but it can get in your drinking water as it passes through lead service lines and your household plumbing system. Burnsville provides high quality drinking water, but it cannot control the plumbing materials used in private buildings.

Read below to learn how you can protect yourself from lead in drinking water.

1. **Let the water run** for 30-60 seconds before using it for drinking or cooking if the water has not been turned on in over six hours. If you have a lead service line, you may need to let the water run longer. A service line is the underground pipe that brings water from the main water pipe under the street to your home.
 - You can find out if you have a lead service line by contacting your public water system, or you can check by following the steps at: <https://www.mprnews.org/story/2016/06/24/npr-find-lead-pipes-in-your-home>
 - The only way to know if lead has been reduced by letting it run is to check with a test. If letting the water run does not reduce lead, consider other options to reduce your exposure.
2. **Use cold water** for drinking, making food, and making baby formula. Hot water releases more lead from pipes than cold water.
3. **Test your water.** In most cases, letting the water run and using cold water for drinking and cooking should keep lead levels low in your drinking water. If you are still concerned about lead, arrange with a laboratory to test your tap water. Testing your water is important if young children or pregnant women drink your tap water.
 - Contact a Minnesota Department of Health accredited laboratory to get a sample container and instructions on how to submit a sample:
[Environmental Laboratory Accreditation Program](https://elabo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam)
<https://elabo.web.health.state.mn.us/public/accreditedlabs/labsearch.seam>
 The Minnesota Department of Health can help you understand your test results.
4. **Treat your water** if a test shows your water has high levels of lead after you let the water run.
 - Read about water treatment units:
[Point-of-Use Water Treatment Units for Lead Reduction](https://www.health.state.mn.us/communities/environment/water/factsheet/poulead.html)
<https://www.health.state.mn.us/communities/environment/water/factsheet/poulead.html>

Learn more:

- Visit [Lead in Drinking Water](https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html)
<https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html>
- Visit [Basic Information about Lead in Drinking Water](http://www.epa.gov/safewater/lead) (<http://www.epa.gov/safewater/lead>)
- Call the EPA Safe Drinking Water Hotline at 1-800-426-4791. To learn about how to reduce your contact with lead from sources other than your drinking water, visit [Lead Poisoning Prevention: Common Sources](https://www.health.state.mn.us/communities/environment/lead/sources.html) (<https://www.health.state.mn.us/communities/environment/lead/sources.html>).

Help Protect Our Most Precious Resource – Water

The Value of Water

Drinking water is a precious resource, yet we often take it for granted.

Throughout history, civilizations have risen and fallen based on access to a plentiful, safe water supply. That's still the case today. Water is key to healthy people and healthy communities.

Water is also vital to our economy. We need water for manufacturing, agriculture, energy production, and more. One-fifth of the U.S. economy would come to a stop without a reliable and clean source of water.

Systems are in place to provide you with safe drinking water. The state of Minnesota and local water systems work to protect drinking water sources. For example, we might work to seal an unused well to prevent contamination of the groundwater. We treat water to remove harmful contaminants. And we do extensive testing to ensure the safety of drinking water.

If we detect a problem, we take corrective action and notify the public. Water from a public water system like yours is tested more thoroughly and regulated more closely than water from any other source, including bottled water.

Conservation

Conservation is essential, even in the land of 10,000 lakes. For example, in parts of the metropolitan area, groundwater is being used faster than it can be replaced. Some agricultural regions in Minnesota are vulnerable to drought, which can affect crop yields and municipal water supplies.

We must use our water wisely. Below are some tips to help you and your family conserve – and save money in the process.

- Fix running toilets—they can waste hundreds of gallons of water.
- Turn off the tap while shaving or brushing your teeth.
- Shower instead of bathe. Bathing uses more water than showering, on average.
- Only run full loads of laundry, and set the washing machine to the correct water level.
- Only run the dishwasher when it's full.
- Use water-efficient appliances (look for the WaterSense label).
- Use water-friendly landscaping, such as native plants.
- When you do water your yard, water slowly, deeply, and less frequently. Water early in the morning and close to the ground.



Learn more:

- [Minnesota Pollution Control Agency's Conserving Water webpage \(https://www.pca.state.mn.us/living-green/conserving-water\)](https://www.pca.state.mn.us/living-green/conserving-water)
- [U.S. Environmental Protection Agency's WaterSense webpage \(https://www.epa.gov/watersense\)](https://www.epa.gov/watersense)

Conserve Water and Save Money with Smart Irrigation Controllers

Your in-lawn irrigation system could be wasting water and money. Most sprinklers run on a timer, but they don't take into account whether or not the lawn actually needs watering. Irrigation systems can run too long or too often – leading to overwatering. This can be a drain on your water bill, a waste of water, and create shallow root systems that are bad for your lawn.

Smart irrigation controllers – which can be purchased at most home improvement stores – act like a thermostat for your sprinkler system. They use local weather reports and forecasts to determine how much it has rained in recent days and how much it's expected to rain in the near future. Using this information, the controller can then turn on and off automatically when it will be most effective for the lawn.

Water Bill Credit Available

Burnsville residents can receive a credit of up to \$200 on their water bill by purchasing and installing a smart irrigation controller. To request a credit, residents must:

- Have an in-lawn irrigation system that is connected to the City's water supply
- Purchase and install a WaterSense-certified smart irrigation controller (controllers purchased between Jan. 1 – July 15, 2019 qualify for the credit)
- Fill out and submit an online request at www.burnsvillemn.gov/water
- Include a photo/scan of the receipt/proof of purchase
- Include a photo of the irrigation controller's box showing the WaterSense logo alongside the installed controller

Irrigation controllers require a smart phone for set up and a Wi-Fi connection to monitor weather conditions.

For more information or to request a credit visit www.burnsvillemn.gov/water. Requests are due by Monday, July 15.



You Can Prevent Pollution

Many of our daily activities contribute to the pollution of Minnesota's surface water and groundwater. You can help protect these drinking water sources by taking the following actions:

- **Lawn and property:**
 - Limit use of herbicides, pesticides, and fertilizers on your property.
 - Keep soil in place with plants, grass, or rocks.
 - Cover temporary piles of dirt with a tarp or burlap sack.
 - Keep leaves and grass off of streets and sidewalks.
 - Maintain any septic systems, private wells, and storage tanks to prevent leaks. Seal any unused wells.
- **Out-of-date medications:** Never flush unwanted or out-of-date medications down the toilet or sink. Always take them to a waste disposal or prescription medication drop-off site. More information is available at [Managing unwanted medications \(www.pca.state.mn.us/living-green/managing-unwanted-medications\)](http://www.pca.state.mn.us/living-green/managing-unwanted-medications)
- **Hazardous materials:** Safety store hazardous materials such as paint, batteries, herbicides, pesticides, and pool chemicals. Dispose of them at a proper waste disposal facility or drop-off event. Do not dump down storm drains, sink or onto your land. Learn more at: [Keep hazardous waste out of the garbage \(http://www.pca.state.mn.us/featured/keep-hazardous-waste-out-garbage\)](http://www.pca.state.mn.us/featured/keep-hazardous-waste-out-garbage).
- **Pet waste:** Pick up after your pet and put waste in the trash.
- **Trash:** Seal trash bags and keep litter out of the street.
- **Winter ice removal:** Chemicals used to break up the ice are called deicers or anti-icers. They can be harmful to the environment, corrosive to driveways and sidewalks and harmful to plants, pets and humans. Always shovel first, and then only apply deicers/anti-icers lightly if needed. Learn more at [10 smart salting tips to protect Minnesota waters \(https://www.pca.state.mn.us/featured/10-smart-salting-tips-protect-minnesota-waters\)](https://www.pca.state.mn.us/featured/10-smart-salting-tips-protect-minnesota-waters).
- **Keep an eye out for car and motor fluids:** Seal or repair any fluid leaks that could run off onto streets and into storm drains. Take used motor oil or other fluids to a neighborhood drop-off site.
- **Be a water advocate:** Spread the word; get involved. There are many groups and individuals working to protect water across Minnesota.

Properly Dispose of Unwanted Medication

Bring your unused or expired medication to the Burnsville Police Department lobby for safe disposal.



Most prescription, over-the-counter and pet medications are accepted – including creams, gels, liquids and pills.

The dropbox is anonymous and can be accessed 24 hours a day, 365 days a year.



burnsvillemn.gov/drugdropoff

Reduce Backflow at Cross Connections

Bacteria and chemicals can enter the drinking water supply from polluted water sources in a process called backflow. Backflow occurs at connection points between drinking water and non-drinking water supplies (cross connections) due to water pressure differences.

For example, if a person sprays an herbicide with a garden hose, the herbicide could enter the home's plumbing and then enter the drinking water supply. This could happen if the water pressure in the hose is greater than the water pressure in the home's pipes.

Property owners can help prevent backflow. Pay attention to cross connections, such as garden hoses.

The Minnesota Department of Health and American Water Works Association recommend the following:

- Do not submerge hoses in buckets, pools, tubs, or sinks.
- Keep the end of hoses clear of possible contaminants.
- Do not use spray attachments without a backflow prevention device. Attach these devices to threaded faucets. Such devices are inexpensive and available at hardware stores.
- Use a licensed plumber to install backflow prevention devices.
- Maintain air gaps between hose outlets and liquids. An air gap is a vertical space between the water outlet and the flood level of a fixture (e.g. the space between a wall-mounted faucet and the sink rim). It must be at least twice the diameter of the water supply outlet, and at least one inch.
- Commercial property owners should develop a plan for flushing or cleaning water systems to minimize the risk of drawing contaminants into uncontaminated areas.



Home Water Treatment

Overview

Most Minnesotans, whether they drink from a public water supply or a private well, have drinking water that does not need treatment for health protection. Water treatment units are best for improving the physical qualities of water—the taste, color, or odor.



No single treatment process can remove all substances in water. If you decide to install a home water treatment unit, choose a unit certified and labeled to reduce or remove the substance of concern. If there is more than one substance you want to remove from your water, you may need to combine several treatment processes into one system.

Even well-designed treatments systems can fail. You should continue to test your drinking water after you install a treatment unit. All home water treatment

units need regular maintenance to work correctly. Regular maintenance may include changing filters, disinfecting the unit, or cleaning scale buildup. Always install, clean, and maintain a treatment unit according to the manufacturer's recommendations.

Learn more at [Home Water Treatment](https://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html)

(<https://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html>).

Beware of Water Treatment Scams

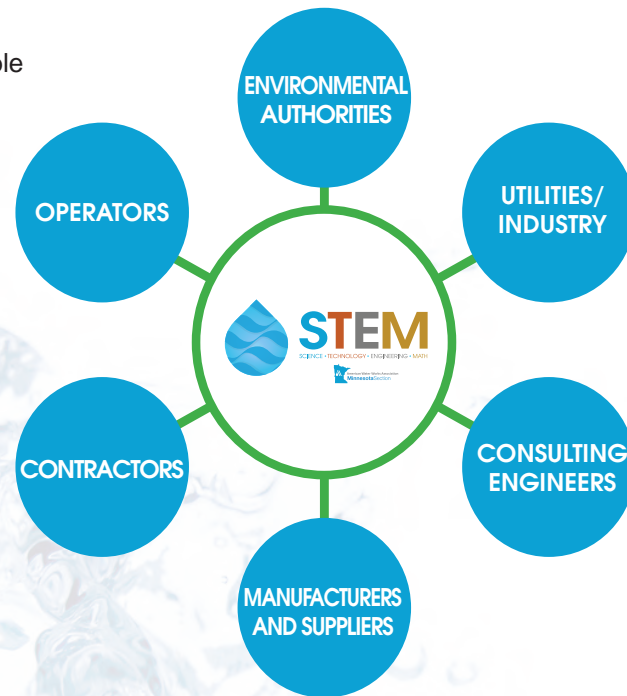
False claims, deceptive sales pitches, or scare tactics have been used by some water treatment companies. Every person has a right to decide what is best for themselves and their family, and you may choose to install additional water treatment to further lower the levels of contaminants of emerging concern, chlorine, and other chemicals in your water. However, you should be cautious about purchasing a water treatment system. If you are considering the purchase of a home water treatment system, please read the Minnesota Department of Health's recommendations online at [Warning: Beware of Water Treatment Scams](https://www.health.state.mn.us/communities/environment/water/factsheet/beware.html)

(<https://www.health.state.mn.us/communities/environment/water/factsheet/beware.html>).

WATER BASED CAREERS

WATER TREATMENT

OPERATORS — responsible for making any water supply safe for human consumption through the use of chemical, biological, mechanical, and fluid dynamic disciplines. Daily works with computers, laboratory test equipment, chemical delivery systems, and large electrical pumps, motors and controls. Key attributes include attention to detail, an inquisitive mind, respect for others, self-motivation, and an aptitude for science and mechanics.



WATER DISTRIBUTION

— performs a multifaceted job within the scope of a municipal setting. The water distribution system is sub ground and is the delivery portion of a water system to a residents home or business. For the most part, this technician/operator works outside a physical plant or building.

FACILITY MAINTENANCE — responsible for maintaining and repairing any equipment used in the water and wastewater treatment processes. Maintenance staff may also be responsible for pumping stations, distribution and collection systems, and general building upkeep.

WATER METER READER — regularly read the water meters in houses, businesses, and industries to determine water usage. This is necessary for billing the owner of the property for both water and wastewater services. A water meter reader will also assist with the installation, repair, and servicing of meters.

WASTEWATER TREATMENT — remove pollutants from wastewater so that it is safe to discharge to receiving waters. The process can involve settling, biological treatment, flocculation, coagulation and settling as well as disinfection and filtration.

PROCESS CONTROL & LABORATORY — install, modify, maintain and repair instrumentation used in measurement and control systems. In the water industry, these instruments measure temperature, water quality, water levels and flow. Accurate collection of water data is essential in the regulatory environment of water.

LABORATORY ANALYST — performs a variety of analyses on samples for process control, routine monitoring, and licensing compliance. Data from laboratory analyses is used by operators to make adjustments within the plant to ensure high quality effluent.

MICROBIOLOGIST — performs critical analysis for the presence or absence, and counts of pathological bacteria, viruses, parasites and other biological organisms. The data is required for compliance with regulations and for process control.

GEOGRAPHIC INFORMATION SYSTEMS ANALYST — provides technical support and assistance. Generates and updates the mapping system.

ENVIRONMENTAL SAMPLER (WATERSHED, STORMWATER) — perform field sampling to help monitor changes up and downstream of treatment plants as well as help assess impacts of treatment technologies. They support the environmental and watershed monitoring programs, in conjunction with various stakeholders to support great quality drinking water and to maintain and preserve the riparian habitats.

MANAGEMENT — provides overall management of operation and maintenance of existing infrastructure. Responsible for maintaining and updating regulatory requirements including compliance monitoring and enforcement. Meet with municipalities/industrial owners to discuss regulatory issues/concerns.

OPERATIONS/PROCESS OR MAINTENANCE ENGINEER AND TECHNICIAN — typically works in a water or wastewater treatment plant setting or can also include Industrial or Manufacturing processes. Duties may include:

- Maintaining effective production processes including treatment, optimizing treatment processes, and ensuring compliance with regulatory limits.
- Evaluating existing treatment processes / systems, and looking for ways to make them more effective or economical.

RESEARCH/PLANNING ENGINEER — general responsibilities include the investigation, development and evaluation of new processes and equipment for use in their industry, in response to an assigned goal or to solve a specific problem.

DESIGN ENGINEER — responsible for design of infrastructure, including water treatment plants, wastewater treatment plants, water distribution systems, sanitary systems, or stormwater collection and treatment systems.

WATERSHED SPECIALISTS — responsible for managing the risks associated with the watershed. Besides monitoring of water quality, watershed strategies are developed to maximize water quality and conservation.

TECHNICIAN — coordinates, inspects and approves the construction of water and sewer system components, in accordance with approved construction and engineering specifications, policies and practices.

WASTEWATER COLLECTION — performs a variety of tasks in the maintenance and repair of sanitary sewers. Operates highly specialized sewer and storm drain cleaning equipment; utilizes laptop computers to complete work assignments; performs research on wastewater collection assets. Raises and seals manholes, including pouring of concrete, directing traffic away from work area and informing general public of sewer operations. Inspects and maintains sewer pumping facilities. Clean pumps, fuel generators and perform maintenance duties inside or adjacent to pump stations.

UNDERGROUND UTILITY LOCATOR — identifies and maps location and depth of utilities such as water, sewer, stormwater and fiber optics. Works with utility maps, utility designating equipment, provides proper field sketches. Uses a variety of mapping and as-built software to locate infrastructure. Utilizes a variety of technology (ground penetrating radar (GPR), Smartphone, iPads locators, measuring tool).

IT ANALYST — provides computer and information systems support. Works with tablets and iPads, smartphones, GPS and uses and supports a wide variety of computer systems.

www.MNAWWA.org



PATHWAY TO WATER-BASED CAREERS



STEM
SCIENCE • TECHNOLOGY • ENGINEERING • MATH



www.MNAWWA.org

EVERY JOB SHOULD BE THIS FUN!

IMAGINE A JOB WHERE YOU...

- Make a huge difference for people who live and work in your community. They depend on you to make their lives safe.
- Are challenged, rewarded and will learn new things every day.
- Are proud of what you do for your community.
- Work with fun people who care about you.
- Earn lots of vacation to spend with your family.
- Have a schedule that provides time for a life outside of work.
- Have a job that provides the income to do many of the things you've always wanted to do.



If you want to find real job satisfaction in a career that truly matters, consider a job in the WATER-based industry.

BENEFITS

- **100% JOB PLACEMENT.**
- **FLEXIBLE HOURS AND SCHEDULE.**
- **ROOM FOR CAREER GROWTH.**
- **USE NEW TECHNOLOGY — COMPUTERS, IPADS, IPHONES, TABLETS, GPS AND GIS.**
- **PAID MEDICAL AND DENTAL INSURANCE.**
- **PAID TIME OFF.**
- **CLOTHING ALLOWANCE.**
- **PENSION AND 401K RETIREMENT SAVINGS.**
- **MAKE A DIFFERENCE — COMMUNITY AND ENVIRONMENTAL – GOOD STEWARDSHIP!**
- **GREAT STARTING SALARY!**
- **E-LEARNING OPPORTUNITIES.**
- **PLENTY OF TIME TO PURSUE HOBBIES**
- **EXCELLENT BALANCE BETWEEN FAMILY AND WORK.**

FUN ACTIVITIES

BE A LEAK DETECTOR. ACTIVITY: CHECK FOR TOILET LEAKS

You will need:

- Food coloring or dye tablets
- A clock or watch
- A toilet

INSTRUCTIONS:

1. Remove the lid off the toilet tank.
2. Add a few drops of food coloring or a dye tablet into the tank. Do not flush the toilet.
3. Wait 10 minutes. If color appears in the toilet bowl, without flushing, it has a leak.
4. Flush the toilet immediately after the experiment ends to avoid staining inside of the tank.

WATER TASTE TEST

You will need:

- Samples of tap water and several brands of bottled water
- Small paper cups

INSTRUCTIONS:

1. Pour the different types of water into their designated cups. Keep the source hidden until after the taste test is completed.
2. Taste each water sample. Which water do you enjoy the most, based on: clarity, bouquet, and taste?

BALLOON FUN

You will need:

- Balloons (12 inch)
- Small funnel or a small piece of paper rolled up in a funnel shape
- Baking soda
- Vinegar
- Small plastic bottle (12 or 20 oz. soda bottle)

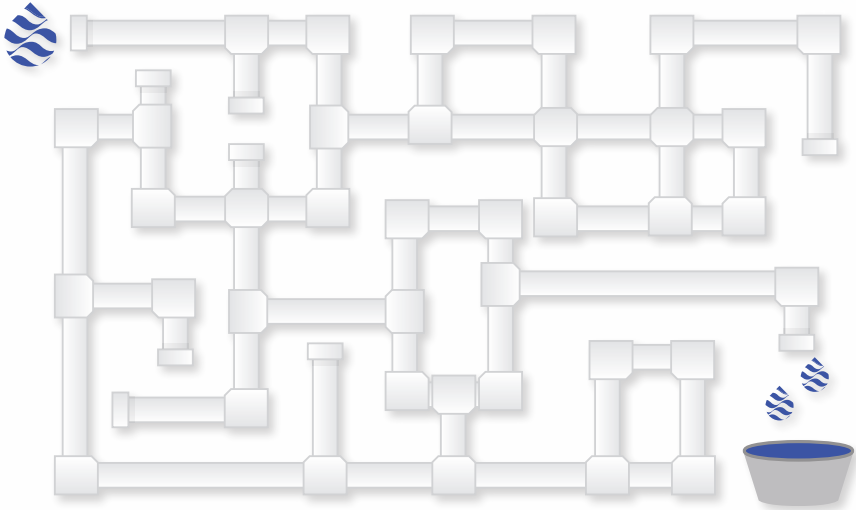
INSTRUCTIONS:

1. Using the funnel, add 3 teaspoons of baking soda to each balloon.
2. Fill each soda bottle 1/3 full with vinegar.
3. Without dropping in the baking soda, fit the balloon top over the bottle opening.
4. Hold up the balloon and let the baking soda fall into the vinegar.
5. Watch as the baking soda mixes with the vinegar to make carbon dioxide gas and blow up the balloon.

The vinegar mixes with the baking soda to create a chemical reaction that produces carbon dioxide gas. The gas then blows up the balloon.

MAZE

Help the water drop find its way through the pipe.



TRAINING AND EDUCATION OPPORTUNITIES
(WATER ENVIRONMENT TECHNOLOGY)



www.SCTCC.edu
(keyword search - WETT)



www.VCC.edu
(keyword search - Water Quality)

ORGANIZATION WEBLINKS

MN American Water Works • www.MNAWWA.org

Water Environment Federation • www.wef.org

MN Wastewater Operators Association • www.MWOA.net/careers

MN Public Works Association • www.APWA-MN.org

WORD SEARCH

C E V A P O R A T E T E E L S
N D L G D L T I S Y V E A M H
N I Z O P N R M Z A R R W C S
O S L J M O A V P U E A A X X
I S Y E E Y V O T T T S X P P
T O Q S Y W R A E E S A A G W
A L W H V A R M R S O B Q G D
L V G U T E O E M L Y L I E
U E C I P M V A N I P C L T O
M P O M R A S P J L F O M I R
U N E E P O O A F U S I U D L
C T H O N A T M O S P H E R E
C T R S F A S T C S P P A I P
A D I U Q I L L C A S T N E T
O S D U O L C M E F P D I A X

SOLID
LIQUID
EVAPORATE
EVAPORATION
SEASONS
DISSOLVE
GAS
WATER VAPOR
CLOUDS
ACCUMULATION
SLEET
THERMOMETER
ATMOSPHERE
TEMPERATURE